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The War Over Defense Tech

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Silicon Valley firms like Palantir and Anduril are threatening the foundations of US industrial policy even as they call for reenergizing it. What made their current bid for power possible?

Last October, on a Martin Luther–inspired website called www.18theses.com, a software executive named Shyam Sankar published a four-thousand-word polemic with the title "The Defense Reformation." "As a nation, we are in an undeclared state of emergency," it begins. There follows a litany of provocations: Chinese escalation in the South China Sea, Iranian attacks on US military bases, the October 7 attacks in Israel, "an estimated 1 million casualties in brutal combat in Ukraine." All this, Sankar writes, amounts to "a hot Cold War II."

It is a war, he argues, for which the US is catastrophically underprepared: "In the current environment, American industries can't produce a minimum line of ships, subs, munitions, aircraft, and more." The problem lies with American capitalism in its present form, which—as Sankar lamented last year on a military podcast called *The Merge*—has left legacy defense firms like Lockheed Martin dominated by "fifth-generation MBA cadre[s]" who care more "about cash flow and buybacks and dividends than…about the honest hard work of engineering innovation." Under these conditions the defense department's subsidies for private business, he writes in "The Defense Reformation," have neither "the supposed advantages of a planned economy nor the (far superior) advantages of a free market."

Sankar is the CTO and executive vice-president of Palantir, the start-up cofounded in 2003 by Peter Thiel that specializes in a peculiar hybrid of big-data manipulation and

McKinsey-style consulting work. Many of Sankar's Palantir colleagues and peers at other Thielworld start-ups—notably Anduril, which bills itself as a pioneering disruptor in software-heavy military hardware—have advanced a similar criticism of the neoliberal state, bemoaning its declining interventions in manufacturing and research and lambasting the legacy defense firms, often nicknamed "primes," for their sclerosis, inefficiency, and alleged monopolistic behavior. The innovative, capitalist spirit and manly vitalism that defined the defense department through the cold war is, for this group, long gone. The task of the hour, as Sankar writes in "The Defense Reformation," is therefore nothing less than "to resurrect the American Industrial Base."

You might think this would mean something like what, under the previous administration, went by the name Bidenomics: initiatives such as the CHIPS Act or the Inflation Reduction Act, which paled in comparison to total federal defense spending—the combined estimated cost of those two bills, which would be spread over a number of years, was about half the annual defense bill—but nonetheless aimed to bring high-tech manufacturing back to US shores. You would be wrong. "The most important and malleable weapons system," Sankar writes, is not missiles or other military hardware but software, by which he presumably means technologies like large-scale data manipulation, narrow forms of computerized optimization applied to "smart" weapons systems and robotics, sensors, autonomous weapons systems, and artificial intelligence.

Investing lavishly in such technology and teaching "our warriors…to wield the software industrial base to maximize lethality" will catalyze what Sankar has elsewhere called a "software-driven reindustrialization" akin to previous industrial revolutions based around water, steam, coal, or oil. For a range of figures in the emergent defense-tech sector to which Palantir and Anduril belong, this will require wrenching guaranteed contracts from the bloated primes and promoting competition by having branches of the armed services bid against one another, not to mention allowing even more sales elsewhere. It will also require binding the state closer to a range of tech giants—especially firms like Meta, Amazon, and Microsoft—that have

thus far, on this view, neglected their patriotic duty to engage in defense work and profited from feminized "ad-tech" instead.

These arguments have found a broad and receptive audience. In recent years a range of politicians have aligned themselves with the priorities of defense-tech firms, especially as successive White Houses worry about a belligerent Russia, a rising China, and the vulnerabilities exposed by Covid-induced supply shocks—all of which have reenergized a longstanding criticism of Reagan-era political-economic shifts that hobbled productive industries. The Obama and Biden administrations both empowered tech companies at the expense of the primes; Biden, skeptical of free trade and hawkish on China, courted Silicon Valley firms that promised to bring back domestic manufacturing and reindustrialize the rust belt and former defense hubs. But in recent years talk about "software-driven reindustrialization" has become especially widespread on a faction of the new right. That the Trump adviser and conspiracy theorist Laura Loomer could rail on X against Lockheed Martin, with its "woke agenda," for "delivering F-35 fighter jets that are simply not ready for combat"—and that Elon Musk could respond to her that, in any case, "crewed aircraft will be destroyed instantly by cheap drone swarms"—owes much to the rhetoric of Sankar and his peers.

This new Silicon Valley defense-tech and finance group—their grievances, ideology, and policy visions—has become central to Trump's second term. Several defense-tech boosters have assumed powerful positions in the administration, most notably one of Anduril's former senior directors, Michael Obadal, who was just confirmed as Army under secretary, the second-highest ranking civilian official in the Army. Since January Palantir and Anduril have received many billions in contracts, with more on the way. ICE has contracted Palantir since 2011 for software it uses to enforce sanctions and make arrests, and in April signed a new $30 million contract with the company to, in *The New York Times*'s words, "build a platform to track migrant movements in real time." Presumably the deal will help ICE's director, Todd Lyons, realize a vision he laid out that same month at the Border Security Expo in Phoenix, where he said that he wants his agency to run like Amazon Prime, "but with human beings."

These trends show no signs of stopping. Defense Secretary Pete Hegseth has directed the Department of Defense—now calling itself the Department of War—to increase its spending on software, which, he stresses, is "at the core of every weapon and supporting system we field to remain the strongest, most lethal fighting force in the world." Trump has signed executive orders designed to ease restrictions on defense exports and speed up and reduce oversight of the DoD's acquisition process. In September the army announced a new venture-capital-style model for procurement called "Fuze." Firms like Palantir and their new constellation of Silicon Valley funders stand to benefit handsomely from these developments. "We're moving to a software-driven, autonomous…battlefield," the managing director for a prominent private equity firm said at a defense summit earlier this year. "Well, if you want daily software upgrades, you gotta pay software margins."

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Few would contest that the political economy of American defense is troubled. Defense monopolies have stifled competition; companies have slowed their investment in production and concentrated instead on payouts to themselves and shareholders; costs and schedules have spun out of control. By now, as the scholar William Hartung has written, the federal government's ballooning defense budget goes increasingly to "costly, dysfunctional weapons systems that are ill-suited to addressing current challenges." Yet venture-funded defense-tech firms like Palantir and Anduril have positioned themselves as the solution to these ills without any clear evidence that they can deliver on that promise. The problem, put simply, is that they don't have expertise in building things. Because they are above all instruments of financialization, designed to bring future values into the present, they tend to be better at generating short-term profits and juicing shareholder value than at creating durable, high-performing software or hardware systems.

Anduril and other companies that offer "autonomous," AI-enhanced hardware, for instance, have by now attracted criticism from a range of commentators: the evidence indicates that, despite their claims to the contrary, Silicon Valley drones and counterdrones have underperformed in Ukraine, where fighters have tended to

prefer cheaper, hardier Chinese and homegrown drones instead. Adopting Palantir's signature data-organizing software, too, could have significant problems for companies and government agencies in the long term. The software's code is closed-source and privately hosted by Palantir, which retains the power—subject to the terms of its contracts and to the extent they prove enforceable—to change, update, or terminate it. Using it as the "data backbone" for a vast and complicated system makes it distinctly costly and burdensome to switch software in the future, not to mention to train and retrain its users.

Meanwhile, as several critics have argued, the user loses a significant measure of control over the system itself. "The single fundamental problem with the Palantir contract is that the government is outsourcing all of the work to one company in one go," a data expert told the *New Statesman* earlier this year, "and what you get is vendor lock-in. The state doesn't understand the work, they can't see the work…. You develop no knowledge, no understanding of it." On the podcast *Second Breakfast*, the lawyer and former Army officer Eric Robinson related that, when he used Palantir's software in the 2010s, "they would recode your data ingest so you couldn't export it again," with the result that "you had to pay for their tech to effectively be part of your order of battle…. It often seems like a form of long-term rent seeking."

In the telling of companies like Palantir and Anduril, their innovation, efficiency, and software expertise qualify them to jump-start a new era of American industrial policy. But not only do they seem ill-suited for such a task, they have publicly backed the Trump administration as it destroys the foundations of what industrial policy the country has. Alex Karp, the CEO of Palantir, has, for instance, denounced "wokeness" for "corrupting and corroding our institutions," echoing the rhetoric that Trump and other Republicans have used to attack measures like the CHIPS Act for including some redistributive initiatives and giving workers benefits like child care. We are now in a situation, in other words, where an array of right-wing firms and think tanks perversely extol the virtues of industrial policy and American renewal even as they support politicians and financial institutions that are currently dismantling the infrastructure to actually *do* industrial policy.

How did we get here? The answer lies, in part, in the fact that defense-related industries like the semiconductor sector have themselves long obscured their real relationship to industrial policy. It is a central tragedy of the long US century that military Keynesianism—the use of military spending to spur economic growth and enable spending on welfare and other public goods—has been the organizing principle for the country's economy and social life since World War II. The defense budget—last year's allocation was close to $900 billion—goes not just to weapons construction but also to a welfare state within a state: housing, health care, and social services. It funds a great deal of civilian industry, from wooden pallets to satellites and smartphones, not to mention research fundamental to the US economy and some degree of economic redistribution. Because of its sheer scale and reach, defense spending is unique in its ability to facilitate regional coalitions across party lines by directing funding to specific geographical targets: state-specific projects, bases, consortia, and so on.

By forcing policymakers to appeal to "national security" (which since the 1980s has expanded to encompass "economic security")

to justify any efforts at industrial policy or social welfare, this system has long hobbled our ability to build a better world. But during the 1970s and 1980s, when a newly organized right wing took aim at state spending and capacity across the board, even the essential national-security fields of electronics and defense found their access to long-term government support under threat. To retain it, they arrived at a kind of truce. In public, these firms would happily chalk their success up to their own entrepreneurial genius. Under the radar, however, a range of policymakers and industry leaders worked to patch together a precarious, largely hidden system of government support that allowed the businesses—albeit in compromised form—to keep relying on federal planning, funding, and stewardship.

Now the new Silicon Valley defense firms are taking advantage of this state of affairs to press their own interests. Rather than downplaying their reliance on the government in public while reaping the benefits of industrial policy in practice, though, they have done just the opposite, indulging in rhetoric about the return of

the strong state and "reindustrialization" even as they help dismantle the state in the service of financial capital. Understanding the implications of this shift requires grasping the complexities of the relationship that tech and defense firms have long enjoyed with US state power.

2.

In moments of "revolutionary crisis," Karl Marx wrote, men "anxiously conjure up the spirits of the past to their service, borrowing from them names, battle slogans, and costumes in order to present this new scene in world history in time-honored disguise and borrowed language." The defense-tech elite are no exception: they talk obsessively about the past, transmuting political-economic reality into a story of great-men-as-founders. Karp praises the Manhattan Project and welcomes comparisons to Oppenheimer. A *Los Angeles Times* piece from last year discovered that Palmer Luckey, the much-profiled founder of Anduril, has a preoccupation with purchasing cold war military relics: the red nuclear phone, "a couple of submarines," at least one ICBM site. He hopes one day, the profile notes, to acquire "the entire US ground-based nuclear deterrent system…to turn it into a vast museum."

Their account of twentieth-century military-economic history is distinctly revisionist. In his appearance last year on *The Merge*, Sankar explained how to fix the defense-industrial base. "The reality is you focus on winning," he said:

I'm not a founder of Palantir, but I think about going back to that World War II–era period and the immediate cold war, it was founders. We think of it as Northrop Grumman and Martin Marietta, but it was Jack Northrop and Glenn Martin and Howard Hughes and Henry Kaiser, and even inside of government, the Kelly Johnsons, the John Boyds. These are uniquely hardheaded, creative, difficult people that are required to win. And I think every start-up understands that. That's what a start-up looks like.

The truth is dramatically different. The two world wars turned industrial power into US military dominance not because they empowered the genius of individuals but because they built a new and formidable state.

Industrial and state capacity—not to mention the relationship between industry and government—were forever transformed. World War I inaugurated the use of cost-plus contracts, which stipulate that the government pay for all the costs of development and production plus a set profit. World War II offered the US a taste of a centralized planned economy: the war effort consumed 57 percent of the national income, and the government itself converted all the plants it needed to manufacture war material.

In 1942, for instance, the War Production Board—which centralized control of investment and production—forced the whiskey industry to divert 60 percent of its production to industrial alcohol and modernized productive processes.

It would not be an exaggeration to attribute the many new industries that emerged, modernized, or accelerated in the postwar years—aeronautics, vastly improved automobiles and motors, chemical and especially petrochemical firms, modern shipbuilding, electronics, atomic energy, logistics—to centralized government planning and funding. With government help, as Hartung notes in his study *Prophets of War*, the aviation industry's production increased by 13,500 percent.

New plants cropped up across the country, especially in the South and West, inaugurating the long-term industrialization of those regions. Cooperative large-scale applied research proliferated through the National Defense Research Committee, which commandeered both industry and academic resources and personnel. In his 1992 study of US industrial policy, the historian Otis Graham noted that the Defense Plant Corporation built "some 30 percent of the plant capacity on which American mobilization depended," which was crucial to the postwar aircraft industry.

Business leaders resisted their subjection to government administrators, and as soon as the war was over they sought to erase these years from public memory. But the fact remained that US defense contractors and technology firms owed their existence to extensive, heavy-handed government planning.

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Government support, oversight, and coordination of important industries largely persisted throughout the cold war. In the immediate postwar period military

contracts slowed, but the Korean War ensured another boom that lasted until the wind down of the Vietnam War two decades later. The Department of Defense "directed a large portion of the nation's scientific and engineering resources throughout the postwar era," Graham wrote, "frequently picking winning technologies and products by supplying the military's clients—chiefly the weapons, aerospace, telecommunications, and data processing industries—with R&D support and purchasing of output." The government covered nearly all basic research (which mostly occurs at government labs and universities), and much of the research and development conducted by private industry. Companies had plenty of money to invest and reinvest in production—and the DoD pressured them to do just that.

As the scholar Christophe Lécuyer shows in his study *Making Silicon Valley*, all this investment made the US semiconductor industry possible.

DoD contracts remade Fairchild, the industry's pioneering firm, into a major company, and Fairchild in turn brought suppliers and equipment-makers to the Bay Area. The DoD not only funded the development of microelectronics but prioritized incorporating them into military systems; starting in 1963, Lécuyer notes, proposals had to include them for the projects to receive funding.

Defense Secretary Robert McNamara's initiatives before and especially during the Vietnam War transformed defense spending and the industrial policy associated with it. Much was made by General Westmoreland, starting in the late 1960s, of the promise that war would become an "electronic battlefield," with armies taking advantage of all "the advanced technology of communications, sensors, fire direction, and the required automatic data processing" to control the fighting from afar.

That this vision failed to materialize and cost the US dearly—in lives, reputation, and resources—doesn't seem to have led anyone to rethink its premises.

In the late 1960s disenchanted defense workers organized to shift industries such as chemicals and electronics away from war and toward the public good, or at least toward private consumption—an effort known as "civilianization." At the same time, a civilian market for computer chips was exploding. Those initiatives, the planned Vietnam wind down, and détente with the USSR all helped shrink the federal

government's spending on defense in general and military R&D in particular. But it was a brief experiment that came with significant backlash, helping propel Reagan to the presidency and shaping his industrial policy. The federal share of research dollars remained high for much of the cold war, funding the development of lasers, nuclear energy, rockets, aerospace, computers, scientific instruments, data processing, and telecommunications while neglecting automobiles, steel, pharmaceuticals, and textiles—all of which moved offshore to a greater degree than they already had.

3.

The first major political-economic changes after World War II came with the neoliberal turn of the 1980s and 1990s. During these years several crises descended upon a range of productive sectors that had historically relied on federal industrial policy. Internationally, Japan perfected production techniques in high-tech manufacturing—of cars, machine tools, memory chips, and other electronics—and quickly approached dominance in many areas considered central to "national security," like semiconductors and supercomputing. American pundits at the time identified this trend as a direct threat to American-style capitalism and US power.

The period's neoliberal economic reforms—which reduced and limited the nature of government spending while demonizing the most basic forms of long-term planning—weakened productive industries still further, leaving manufacturers beholden to shareholder demands for ever more profits and vulnerable to new threats from financial institutions.

These conditions posed a distinct threat to productive sectors like the semiconductor industry. And yet Intel, which by 1992 was leading the industry in cutting-edge chips, managed to thrive nonetheless. When reporters asked how they did it, the company's executives pointed to what they called "Moore's Law," the idea, named after Intel cofounder Gordon Moore, that chips regularly became smaller and more powerful according to something like a natural principle. Moore's Law became a fixture of the industry's marketing presentations, press releases, and internal conferences.

Over the years it helped convince defense leaders like Clinton's secretary of defense, William Perry, and his protégée Ash Carter that technological solutions could

eventually be found for their most pressing and difficult political problems. Moore's Law remains an unquestioned assumption of scientific, military and national security state discourse and policy, undergirding the entire political-economic imagination of the post–cold war United States. Just as intellectuals started worrying that there might be fundamental limits to capitalist growth, it posited a horizon of infinite progress.

The truth was more complicated. Intel, founded in 1968 by Moore and Robert Noyce, came to prominence by developing some of the first commercial metal-oxide semiconductor chips. Those semiconductors had immediate, tangible benefits, including low power consumption, high noise immunity, and cost efficiency. Working from that basis, the company did regularly improve its output with a kind of lawlike consistency in this era. But it wasn't Moore's Law that won the battle with the Japanese. Instead, Intel and others in the semiconductor industry built coalitions to carve out exceptions to many of the period's neoliberal reforms, reaping the benefits of extraordinary state support. Among other things, the Reagan administration offered tax incentives to subsidize factory construction and investment in manufacturing, encouraged coordination and cartelization by offering antimonopoly relief and state planning, and used economic sanctions and diplomatic pressure to force concessions from Japan, such as giving foreign—which in effect meant US—chip manufacturers 20 percent of their market share and sharing significant manufacturing knowledge.

Under Reagan it was an open secret that the government's treatment of the semiconductor industry, among others, amounted to a form of industrial policy. These measures had the backing of a powerful—if peculiar—bipartisan coalition that was preoccupied with sustaining American hegemony: national security and foreign policy hawks, factions in the business world, and a group of tech-friendly liberals, like Massachusetts senator Paul Tsongas and Tennessee senator Al Gore, who became known as the "Atari Democrats." They were reacting to a new right that objected to industrial policy as such, on the grounds that any government planning and economic intervention smacked of communism: in late 1980 the first installment of the Heritage

Foundation's *Mandate for Leadership*—like its successor, Project 2025—called for destroying large swaths of government by loosening regulations and oversight, centralizing power in the executive, demolishing state capacity, and eliminating or significantly cutting funding for many programs and agencies.

The new right lacked the political leverage to end industrial policy entirely. But between 1980 and 1993 they succeeded at making it politically toxic, forcing the industry and its allies to adjust their tactics. Bill Clinton, an Atari Democrat, took office hoping to build the US's own version of Japan's powerful Ministry of International Trade and Industry; however hostile he was to labor, he implemented significant industrial policy for semiconductors immediately after his election. After Newt Gingrich's Contract for America coalition swept Congress in 1994, however, the administration's room for maneuver narrowed. It was still able to ensure some level of subsidies and planning for semiconductor firms like Intel. But it came to rely heavily on foreign policy measures—like sanctions, trade deals, diplomatic pressure, and throwing around US power to shape new international economic organizations like the World Trade Organization—to open new markets and ensure other benefits for tech companies. By the end of Clinton's second term, a kind of tacit settlement had locked into place. Even as they continued to depend on these various forms of state support, semiconductor companies, tech entrepreneurs who relied on ever-improving semiconductors, and politicians on both sides of the aisle would insist they owed their success to the information-tech revolution, with its promise of infinite growth and cheap consumer goods, all predicated on the work of individual entrepreneurial geniuses.

This rift between rhetoric and reality has only grown since. Today's executives hardly seem to understand the conditions of their own industries; it is as if, on some level, they believe the flattering public narrative their predecessors spun. During his interview on *The Merge,* Sankar remarked that he and his peers are "children…of a Noycean culture." In a sense this is not untrue. Intel's Noyce and Sankar both downplay their industry's debt to industrial policy; Palantir, not unlike Intel before it, is in part in the business of selling what *Wired* recently called "a seamless, almost

magical solution to complex problems." But Sankar clearly meant the analogy in a different sense: to lay claim to Noyce's record of success, to brandish his legacy of American entrepreneurial technological genius, and to insist that Silicon Valley firms' track record of such triumphs should entitle them to remake government in their own image.

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The defense industry faced the same pressures that nearly destroyed US semiconductor firms at the dawn of the post–cold war era. In his last year in office Jimmy Carter reversed the cuts that had depressed the industry for much of the 1970s, and in his first term Reagan initiated an enormous military buildup. All this, Graham writes, strengthened the military's claim on "the nation's scientific and engineering resources, and thus its influence on industrial structure."

But other developments spelled trouble. By the early 1980s financial regulations were being loosened, and corporations were under increasing pressure—legal, managerial, and structural—to secure shareholder profits in the short term at the expense of long-term health. A low-margin productive industry like defense was badly suited to the era. By the mid-1980s firms were focusing on increasing their financial performance by using stock buybacks and cost-reduction strategies like just-in-time inventory management—ordering only enough resources to cover immediate needs. All this compromised their ability to respond flexibly to crises and to make high-quality products.

In 1985 the Reagan administration started reducing defense spending again and limited other avenues for profit. Facing increased political scrutiny, Reagan officials had recently made a big show of auditing firms for the appearance of wasteful spending, introducing policies that tightened defense profits and increased accounting paperwork. Many companies, like GE, curtailed their defense wings or left the sector entirely to boost their stock values for an increasingly defense-skeptical Wall Street. The 1980s also saw the rise of corporate raiders, later known as private equity firms, which would acquire a majority share of a company's stock, take control of its operations, and then "restructure" it, which usually meant stripping it for parts

and paying themselves astronomical sums of money. Between 1982 and 1990 such outfits nearly destroyed several defense firms, including Martin Marietta and Lockheed, and left them weakened with large debt-to-equity ratios. With loosened financial rules and low margins came consolidation: between 1985 and 1988 ten of the top sixty defense firms acquired or were acquired by others.

Perhaps no person's career tracks how the defense industry navigated these changes more clearly than that of Norm Augustine. Born in 1935, Augustine got his start in defense at the Douglas Aircraft Company in 1958. His first foray into government came in 1965 as one of McNamara's young hires, brought in from the private sector to cut waste using "economic efficiency" measures like cost-benefit analysis. He then ping-ponged between the public and private defense sectors: after serving as the under secretary of the Army he joined Martin Marietta, then one of the country's largest defense firms. Between 1980 and 1982, meanwhile, he chaired the Defense Science Board, authoring reports on threats to the defense industrial base and its dependence on the troubled semiconductor sector. Rising in the ranks of Martin Marietta over the 1980s, Augustine saw that defense was in turmoil; he later referred to the decade as the industry's "dark ages."

The fall of the USSR and Clinton's electoral victory brought a new existential threat. Federal defense funding plummeted: between 1989 and 1997 procurement declined by 60 percent. The result was something like the industry's Great Depression; in 1995 Augustine told a House committee that an estimated three quarters of the sector, about 90,000 firms, had evaporated in the span of a decade. As defense programs became fewer and more expensive, the remaining firms started making riskier bids, overpromising on cost, time, and quality.

In 1993 Clinton's defense secretary, Les Aspin, invited the CEOs of major defense firms to the Pentagon for a dinner that would become known as the "last supper." The then-deputy defense secretary, William Perry, showed them a slideshow of necessary defense capacity: "We expect defense companies to go out of business," he told them. When we talked in a recent interview, Augustine told me he feared the administration would nationalize at least significant parts of the industry. They were

faced with either entering new markets, consolidating, or downsizing. In the five years that followed, Augustine consolidated many firms under Lockheed Martin, itself the product of the merger of Lockeed and Martin Marietta, forming the country's largest defense firm. In 1995 the new company went public, at which point it started prioritizing stock prices and other contemporary markers of financial health.

It worked: in 1997 Augustine wrote that the company's share price had nearly doubled in two years. And yet in the process Lockheed Martin closed a quarter of its plants and laid off 100,000 workers, vastly paring down management and labor in the name of efficiency. The benefits of all this cost-cutting rarely went to the government. Nor were many of the gains reinvested in production. Lockheed Martin had become good at getting contracts; Augustine wrote in the *Harvard Business Review* about harnessing the "natural competitive instincts in human beings." But the products themselves suffered: they were more expensive, slower to deliver, and of lower quality.

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The state's priorities were also changing. The Gulf War seemed to vindicate Westmoreland's Vietnam-era dreams of an "electronic battlefield." William Perry, soon elevated to defense secretary, became a firm believer that the US was on the cusp of a "revolution in military affairs"—the idea, as the RAND analyst Paul K. Davis has summarized it, that "technological developments sometimes make possible a qualitative change in the nature of warfare." That conviction moved him to prioritize funding, developing, and promoting "dual-use" technologies that could be applied to both commercial and military settings. He and Clinton built closer relationships with technology firms, offering them greater access to government and policymaking.

In the late 1990s, as the researcher Barry D. Watts notes in a 2008 report, the Pentagon encouraged defense companies to "act more like commercial firms."

Augustine was well-positioned to adapt to these conditions. He had advocated for government support for the semiconductor industry during its crisis: asking "why DoD or the government should provide support for the semiconductor industry," he testified to the Senate in 1987, "would be much like asking at the outset of World War

II why we should buy ships and airplanes because it might help the shipbuilding and the aircraft industries." From his perch on initiatives like the Defense Science Board, he not only observed but shaped how Intel and others had navigated the changing political-economic waters; now he hoped to replicate their accomplishments.

Between 1993 and 1998, as Hartung has shown, Augustine lobbied intensely—and successfully—for immense government subsidies for defense in general and the new Lockheed Martin in particular. Those subsidies came in many forms, from aid for mergers—"closing plants, relocating equipment, paying severance to laid-off workers, and providing 'golden parachutes' to board members and executives," as Hartung puts it—to antitrust exemptions and subsidies for arms exports (especially to new NATO countries). "To say that Augustine is wired into the Washington policy-making process is an understatement," Hartung noted in 1996. "For most of his career, he has been one of a handful of people drawing up the blueprints for American defense policies and deciding where the wiring should be placed."

In the 1990s companies like Intel experimented with setting up their own venture capital arms, government-backed consortia, and new institutions whose purpose was to plan and shape the markets around them. Augustine followed their lead: he and other defense industry leaders managed to insulate themselves both from democratic accountability and from the vagaries of anti-statist politics by creating experimental public institutions. In 1998 George Tenet's CIA enlisted Augustine to help found a nonprofit venture capital firm called In-Q-Tel that gives start-ups long-term guidance and directs them to lucrative, stable government contracts. Unlike traditional VCs, In-Q-Tel claims to focus more on technology and less on profits, though over the years it seems to have helped these new companies make money more than it has helped the government acquire important technology. It was In-Q-Tel that assured the success of, among others, Palantir, Anduril, and the drone company Skydio.

Augustine, who turned ninety this July, hardly ever uses words like "industrial policy" or "neoliberalism," but in practice he and his peers became influential critics of the neoliberal turn. He has argued that, in the financialized economy, "the tax structure discourages long-term investments" and lamented that shareholders hoping for

short-range profit want Lockheed Martin not to "invest in research." Elsewhere, he has called for renewed federal funding for public education and criticized US companies for moving "much of their manufacturing capability abroad." In an influential 2005 report called *Rising Above the Gathering Storm*, he and his colleagues argued that "the prosperity the United States enjoys today is due in no small part to investments the nation has made in research and development at universities, corporations, and national laboratories over the last fifty years." The "pressures" on that sector, they warned, "could seriously erode this past success."

In such moments, Augustine sounds uncannily both like architects of Bidenomics such as Jake Sullivan and Jennifer Harris and like right-wing tech-defense figures such as Sankar, who has similarly criticized "the financialization of the defense industrial base." There is a certain irony here: by founding In-Q-Tel and seeding a bipartisan consensus around what plagued America's political economy, Augustine—perhaps inadvertently—helped create the coalition now hoping to displace the company he has spent much of his life running.

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Defense stocks tanked in 1998 and 1999, and credit agencies downgraded their debt to nearly "uninvestable" levels. As the industry consolidated, firms got even bigger, more complex, and, via joint contracts, increasingly linked to one another. By 2000 they were in a delicate position. With relatively low profits and cash flow but high debt-to-equity ratios, they increasingly focused less on investing in essential R&D than on trying to grow in the short term by competing recklessly for contracts.

Then came the wars in Iraq and Afghanistan, which, as Hartung has shown in *Prophets of War*, inaugurated an industry-wide bonanza. Companies like Lockheed Martin entered new markets: "enhanced interrogation," translation, dubiously legal surveillance. The Bush administration was full of defense monopoly affiliates, among them Secretary of the Air Force James Roche, a former vice president at Northrop Grumman; Secretary of the Navy Gordon England, a former executive at General Dynamics; and Edward Aldridge, who was a member of Lockheed Martin's board of directors while serving on the president's commission on space.

Congress subsidized Lockheed Martin for arming new Eastern European NATO members; in 2008 US companies accounted for two thirds of the world's new arms sales. At the same time, the DoD came to focus on counterinsurgency and counterterrorism techniques that relied heavily on information technology, like cyberwar and "network-centric warfare." Defense Secretary Donald Rumsfeld wanted to make "the leap into the information age" by pursuing drones and surveillance.

None of this meant that the trend toward military privatization slowed. It continued apace through the Iraq War, from the US military's contracts with mercenaries like Blackwater to private contracts for hardware. On *Second Breakfast*, the former Green Beret Justin McIntosh describes how outsourcing military functions to contractors during the Syrian conflict forced him into a situation not unlike *The Wages of Fear*:

I had a truck that had a bent rod. These trucks that we're driving around in, these MRAPs and these large RG-33s…[require] a contractor [to] come in and work on it. We were in an area where we had been shot at. I had to medically evacuate some guys. The contractors did not want to travel. They wanted me to drive this truck hundreds of kilometers to the safe base where they could then repair it.

The problem, McIntosh continued, was that "we had already taken all of that capability that existed within the United States military"—for instance, the ability to repair its own equipment—and "shifted it over to the private sector. It gave them control."

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This tendency toward privatization continued through the Obama administration, during which defense officials started to fixate on reducing costs. ("The gusher has been turned off," Defense Secretary Robert Gates announced in 2010.) Obama saw bloated defense monopolies as an obstacle to this goal. But rather than addressing the structure of the industry or its political economy, the administration focused on improving its topline numbers by switching out the supposedly corrupt, atrophied defense giants for new firms from the Democrat-friendly tech sector, which promised to replace the functions of the legacy firms more cheaply.

An influential proponent of this turn was Ash Carter, whom Obama nominated as his defense secretary in 2014. Carter and his deputy, Robert Work, had a "simple but ambitious" agenda, as the anthropologist Roberto González has written: "to harness the best and brightest ideas from the tech industry for Pentagon use."

Carter's emphasis would be not on training soldiers but on developing drones, automation, satellites, and other cutting-edge defense technologies sourced from Silicon Valley.

Carter's focus on unmanned tech was not exactly a break from the Bush era, but the shift to the Valley was. Fueled by experiments like In-Q-Tel, the tech-defense coalition was already looking to gain market share: in 2014, nearly a year before Carter took office, SpaceX sued the Air Force for preferring the primes; in 2016 Palantir filed a lawsuit against the Army for allegedly trying to develop internal intelligence software without adequately considering commercial options. (One of Anduril's founders, Trae Stephens, has claimed that these lawsuits helped Anduril win defense department contracts.)

Obama and then Trump both also expanded the department's ability to use its "other transaction authority," which allows the government to do business more easily with commercial entities, for example by letting it sign contracts faster and with less oversight.

The defense start-ups that successfully attracted Silicon Valley financing relied on the extraordinary wealth and political lobbying connections of their founders. "Every defense company that had been founded by a billionaire was a success," as Luckey—who sold his VR company, Oculus, to Facebook in 2014 for $2 billion—noted in 2024. "I hate that we live in a country where that's the case," he added. "But I realized that I had a unique responsibility as one of the very few people who was willing to work on national security and blessed with the resources to actually make a real go at it."

Obama officials proved receptive to such lobbying. During his tenure Carter set up an In-Q-Tel-inspired program called Defense Innovation Unit—Experimental (DIUx), which worked closely with a new Defense Innovation Board, chaired by the former Google CEO Eric Schmidt, to determine the government's investments in emerging

technology, from drones to AI. It encouraged Silicon Valley firms and funders with the promise of long-term contracts for defense tech, as well as evaluation and testing—in effect ensuring their success in advance. Carter also laid the foundations for projects that came to fruition under the first Trump administration: between 2017 and 2019 the Army, the Air Force, and the Navy all launched their own experimental institutions designed to set up tech start-ups with military contracts.

Private equity and venture capital saw an opportunity to make nearly guaranteed profits off the government's investments. Between 2021 and 2024, VCs poured $130 billion into defense. In their book *Unit X* (2024), two of DIUx's early directors, Raj M. Shah and Christopher Kirchhoff, claim that by 2017 their work had excited "investors and entrepreneurs in Silicon Valley" about working with the Pentagon by lowering "barriers to entry." (They decline to specify which ones.) When James Mattis visited DIUx under the first Trump administration, in 2017, Shah and Kirchhoff arranged for him to have dinner with the tech investor Sam Altman (then at Y-Combinator) and the venture capitalist Marc Andreessen, who insisted that the Valley was interested in the defense industry and implored him to support the project. Mattis was enticed by the work they were doing on drones—a later fixation of Andreessen's.

Employees at Google expressed discontent with the company's defense contracts, organizing to block initiatives like Project Maven, a machine learning program for the Pentagon. The project was hardly promising: as Alexander Cockburn wrote last year in *Harper's*, an Air Force testing unit found in 2011 that, "among numerous other deficiencies," the drone-mounted cameras on which it relied "could not 'readily find and identify targets,' and its transmission rate was too slow." But DoD funders were eager to collaborate with Silicon Valley all the same. (According to Cockburn, Amazon, Microsoft, and Palantir were among the subcontractors who joined the Maven project after Google declined to renew the contract in 2018.) Since then employers have used the threat of AI to shrink the pool of tech jobs, costing the workers leverage. By 2022 employee dissent had been largely squashed: Google and other major defense firms all but declared that they were happy to work with the military. Now executives at tech and tech-defense firms brag about joining the army reserves

to help with the design and purchase of their products—an arrangement that seems rife with potential conflicts of interest.

The Biden administration continued many of these Obama-Trump trends. Defense Secretary Lloyd Austin appointed Apple's Doug Beck to direct DIU—as it was by now simply called—and empowered him to report directly to Austin. Congress gave the program nearly $1 billion for the 2024 financial year, and Biden awarded important hardware contracts to Palantir and Anduril. SpaceX doubled its federal contracts at the beginning of the Biden administration; they had practically doubled again by the end. In late 2022 Austin established the Office of Strategic Capital (OSC) to push investment in defense-oriented small businesses and tech start-ups; under the One Big Beautiful Bill Act, it will have $200 billion to spend, and likely more in the 2026 National Defense Authorization Act. Perhaps most visibly, Deputy Defense Secretary Kathleen Hicks enthusiastically embraced all things tech: at a 2024 event organized by Andreessen's VC firm, she emphasized that "moving fast and breaking things is necessary to win wars."

Nonetheless DIU's leaders and their Silicon Valley allies felt that the Biden Department of Defense wasn't friendly enough. By 2023, Shah and Kirchhoff complain, it still awarded most of its contracts to the primes. "It seemed as if the whole Biden team had forgotten about DIU and Silicon Valley," they write, "even as Ukraine was aggressively deploying DIU technologies on the battlefield." Their vision for the department is blunt: "All the Pentagon needs to do is be a great customer. Buy products, and trust that good venture capitalists will pour money into the companies building those products."

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All this support for the tech-defense sector has so far had disappointing results. A congressionally mandated report produced this year by the Government Accountability Office suggests that there were no metrics by which DIU could measure its success at actually bringing new technology into the military. The Biden defense department's embrace of tech yielded such fruits as the "Replicator Initiative," which committed in August 2023 to delivering "multiple thousands" of

new autonomous systems in eighteen to twenty-four months. Hartung told me that many industry experts found that timeline hard to believe: no program had ever delivered products that fast. The deadline the initiative set has now passed, and his skepticism seems warranted. The initial delivery was said to be in the hundreds, and *The Wall Street Journal* recently reported that some of the program's systems "have been unreliable, or were so expensive or slow to be manufactured they couldn't be bought in the quantity needed."

For many observers, the first real test of Silicon Valley defense tech is how US-made drone technology fares in Ukraine, a war often cited as a laboratory for unmanned warfare. In a speech this past August, published in the *Free Press*, Luckey described going to the front lines "just a few weeks" after the full-scale Russian invasion "to train Ukrainian soldiers on advanced military technology that I had developed." He witnessed "remarkable" feats, he said: "with drones costing just a few thousand dollars each, a handful of Ukrainian pilots remotely carpeted airstrips with explosives thousands of miles into Russia." (He seems to have been playing fast and loose with chronology: Ukrainian drones reached hundreds of miles into Russian territory that December; it would take them still longer to reach thousands.)

Drone technology has indeed been crucial to the conflict, especially more recently, as troops have been harder to come by on both sides. But a range of commentators have cautioned against assuming it therefore represents "the future of war." Prominent defense think tanks like RUSI have warned that "overreliance on uncrewed aerial systems" has created "significant problems" for Ukraine, in part because it "plays into Russia's strengths" at short-range air defense and other antidrone capabilities. William LaPlante, Biden's under secretary of defense for acquisition and sustainment, has echoed this view. "Don't tell me it's got AI and quantum in it. I don't care," he said at a 2022 conference. "The tech bros aren't helping us too much in Ukraine…. It's hardcore production of really serious weaponry. That's what matters." (Many drone companies, moreover, still rely on Chinese parts.) The subtext behind the flurry of puff pieces treating drone war as an inevitability is that a trough of money in the

small-to-midsize drone market is up for grabs, over which various coalitions are starting to compete.

To the extent that drones have proven essential in Ukraine, for that matter, hardware made in the US—by firms like Microsoft, Skydio, AeroVironment, and Cyberlux—has fallen short of expectations. Ukrainians have found US-produced drones "fragile and unable to overcome Russian jamming and GPS blackout technology," *The Wall Street Journal* reported last year. "At times, they couldn't take off, complete missions or return home." Skydio recently announced that one of its controllers was vulnerable to radio interference. The trend of connecting more devices together to create an "Internet of things" often creates new vulnerabilities in turn.

Anduril's output is no exception. The defense blogger who writes under the name Secretary of Defense Rock observed in one widely shared piece that the company's products "often amount to little more than rebranding existing technologies with a Silicon Valley gloss." One of their much-touted anti-drone interceptors, the essay suggests, has "the same core function" as a familiar Raytheon product, "with marginal enhancements, repackaged in a sleeker design and infused with branding language that flatters venture capital expectations more than it reflects operational novelty." Anduril continues to contend both with high costs and with certain problems in the field: "During an exercise last year in the Pacific called Project Kahuna," according to the *Journal*, "drones from different manufacturers connected by Anduril's software struggled at times to coordinate and perform tasks when out of sight from the operator." Last month, *Reuters* has reported, the Army's chief technology officer circulated a memo identifying a "very high risk" factor in Anduril's prototype for a "next generation command and control" battlefield communications network: "We cannot control who sees what, we cannot see what users are doing, and we cannot verify that the software itself is secure."

None of this should be surprising. Anduril is making moves to scale up production, claiming that it plans to open a "hyperscale manufacturing facility" in Ohio next year—but VC–funded firms don't usually have the incentives or structure to prioritize taking on high-risk hardware projects. Often such companies focus instead on

acquiring other firms in areas they'd like to enter, whose "founders" and engineers tend to quickly depart. They often make cuts for "efficiency" that produce an attractive financial picture in the short term, but damage the company in the long run. "The primary product of the defense VC strategy," the scholar Elke Schwarz has written in a recent article, "is not a defense technology as such, but financial returns achieved through growth."

Worse still, she notes, venture capital's "mandate for hypergrowth" means that VC-funded companies feel even more pressure than regular ones to produce exponential profits; when those companies make defense products, investors stand to reap enormous windfalls if armed conflict escalates around the world. "To get the military-industrial sector to grow fast," Schwarz writes, "perhaps the best catalyst is war, or at least the embrace of its possibility." Indeed, in 2023 a representative of America's Frontier Fund, a VC firm backed by Thiel and Schmidt, told investors that if "the China/Taiwan situation happens," or more generally "if there is a kinetic event in the Pacific," then the fund's investments would go up ten times "overnight."

5.

Resisting the defense-tech sector's great man theory of history has grown all the more urgent now, as the Trump administration seems intent on placing those "great men" at the helm of the national security state and entrusting them with reindustrializing the sectors attached to it. Michael Obadal, the former Anduril senior director who is now Army under secretary, is part of a large cohort of Silicon Valley–adjacent figures in the administration: Dan Driscoll, a onetime J.D. Vance adviser with a background in private equity and venture capital, was confirmed as Army secretary

; Steve Feinberg, founder of the notorious private equity firm Cerberus Capital Management, which in recent years has invested heavily in defense tech, is in as deputy secretary at the Department of Defense, where he is using his experience to "restructure" the Pentagon; the retired general and venture capitalist Dan Kaine is now chairman of the Joint Chiefs of Staff; the Office of Science and Technology Policy is now headed by Peter Thiel's former chief of staff; and the assistant secretary of

defense for critical technologies is now Michael Dodd, also known as "the Doddfather," an alumnus of DIU.

At least until the administration's recent announcement that it is seeking an equity stake in Lockheed Martin, the primes appeared mostly sanguine about their aspiring competitors. Congress—which tech-defense firms spend millions lobbying

—writes the yearly defense budget, and primes have historically wielded considerable power there; they still receive the bulk of defense spending. Among the legacy firms the prevailing consensus has been that the upstarts will not be able to replace them: their products, after all, are already battle tested.

Even so, the defense-tech contracts are pouring in. The Golden Dome missile defense program—a $175 billion-plus redux of Israel's Iron Dome and Reagan's Star Wars missile defense program, which experts call just as unfeasible as it was in the Eighties—seems to be shaping up as a cash giveaway to the tech-defense right; a joint bid from SpaceX, Anduril, and Palantir is reportedly the front-runner for the contract. (Hegseth has ordered major cuts at the Pentagon testing and evaluation office that a congressional panel recently tasked with assessing the program.) Other start-ups hope to privatize hardware testing, and Palantir seems to be positioning itself to assume some of the same functions of the embattled National Oceanic and Atmospheric Administration. New Pentagon rules that facilitate "anything-as-a-service" contracting allow private companies to shut off or modify their products as they desire (within contractual constraints, assuming these are followed), making US arms exports considerably less appealing to other countries but allowing the companies veto power over the use of their services or weapons—and further opportunities for rent-seeking. This past May, Luckey announced that Anduril would, as *60 Minutes* put it, surpass "$6 billion in government contracts worldwide" by the end of the year. "We buy a lot of things from Palantir," Trump said at a recent White House AI summit, calling out Sankar by name.

Defense-tech executives clearly hope to take advantage of the post-Covid surge of interest in industrial policy. There has been a great deal of chatter in right-wing circles, from Oren Cass's American Compass to the Heritage Foundation, about the prospect

that the US could move from a supposedly feminized service-based economy to a masculine-coded, producerist one organized around defense manufacturing. (In April, Fox News ran the chyron "TRUMP'S MANLY TARIFFS: PUNDIT BELIEVES IT COULD REVERSE CRISIS IN MASCULINITY.") Even institutions like the American Enterprise Institute, which have historically reviled industrial policy in any form, have jumped on board, publishing papers endorsing industrial policies of different kinds tied to "national security."

Palantir's leaders have echoed this rhetoric for their own purposes: Sankar lamented on *The Merge* that the best minds have gone into fields like ad-tech rather than defense engineering; Karp has declared that US industry has degenerated in the past fifty years to focus on "the consumer market" rather than using technology to "address challenges of industrial and national significance." Trump himself seems to alternately contradict and endorse this agenda. He has been especially critical of CHIPS, accusing it of offering companies money they didn't need and requiring them to hire "woke people" that hampered their success; at a recent AI summit he encouraged "all American companies to join us in rejecting poisonous Marxism in our technology." It is as if he thinks that chip manufacturing can be brought back to the US through permitting reform and tariffs alone. Appalling immigration raids like the recent one on a Hyundai factory in Georgia have conflicted with the administration's aim to learn from foreign expertise, producing extreme international backlash.

Most recently, under Feinberg's aegis at the DoD, the administration has pioneered an entirely new form of statecraft: running the Pentagon like a private equity firm. In the past two months the government has made a slew of one-off deals with companies like NVIDIA, AMD, Intel, and a rare earth mineral company called MP Materials. At the center of some of these agreements is a novel reading of the Defense Production Act, which the Senate Armed Services Committee is trying to formalize via a new provision allowing the government to make equity purchases in private firms. The provision has yet to pass—which has not stopped the administration from going ahead anyway.

The MP Materials agreement is instructive. Feinberg, no stranger to investing in the defense world, reportedly negotiated the deal, which includes a provision to buy magnets from the company despite the fact that they only started manufacturing magnets last year. By offering a price floor and production guarantees, the Department of Defense made it possible for Goldman Sachs and JP Morgan to finance the issuance of equity in the firm—at which point, seemingly for the first time in US history, the DoD itself bought enough equity to become the company's largest single shareholder and provided a $150 million loan for the company's California mine.

Each of these deals works a bit differently. CHIPS had promised Intel $11 billion on the condition that it met certain milestones, including building an arguably unnecessary Ohio megafactory; when the firm appeared unlikely to meet those conditions, the Trump administration exchanged the remaining money for roughly 10 percent equity in the company. With AMD and NVIDIA, the mechanism looked more like a straightforward shakedown: Trump announced that if NVIDIA wants to continue selling AI chips to China, it has to fork over 15 percent of the profits.

These moves hardly amount to a real industrial strategy. One-off coercive deals with individual companies already seem unlikely to reindustrialize the country, and it remains unclear what the administration will do with its new assets. But that outcome seems even less plausible as the Trump administration takes a sledgehammer to the government's capacity, oversight, and industrial policy. In a mere nine months the administration has destroyed the infrastructure of research and development on which the semiconductor industry and many others rely; done its best to "get rid of" the "horrible, horrible" CHIPS Act, including the new research infrastructure it created; threatened to arbitrarily revoke awards and enacted swiftly changing tariffs that damage industries; behaved so erratically toward the US's longtime allies that the EU and others have started looking elsewhere to buy weapons; erased the nonpartisan image on which the military depends for its continued funding and ability to operate; decimated the Pentagon's civilian staff; devastated green industries while simultaneously promising to drive the price of oil so far down that the industry believes it will cause significant bankruptcies; and curtailed the Department

of Defense's product testing, among much else. None of the defense-tech firms that praise industrial policy in theory have launched any serious public protest against these decisions. The more contracts they get, meanwhile, the more government resources they will siphon away from investing in fields—like climate technologies, welfare, or alternatives to plastics—that would benefit the US's economy or security.

Bigger tech companies such as Meta, Amazon, and Google have, for their part, also moved much closer to the Trump administration. They seem indifferent about the destruction of the infrastructures of research and support upon which they previously relied, perhaps because they believe they can hire researchers on a mercenary basis, outsource research and development to AI, or replace government functions with private ones—a doubtful prospect, since the government's function as a neutral evaluator and standard-setter seems impossible to replace.

The practical problem with this vision, to say nothing of its moral and ethical failings, is that it can only deal with the short term. "We love disruption," Karp said during the company's quarterly earnings call in February. "Disruption, at the end of the day, exposes things that aren't working. There will be ups and downs. There's a revolution. Some people are going to get their heads cut off. We're expecting to see really unexpected things and to win." Tech companies and venture-capital firms have become experts at leveraging this sort of "disruption" to generate value for their shareholders on the basis of imagined future profits, and firms like Palantir and Anduril are no exception. But now they have become so voracious, so all-consuming, that they are putting the country's productive industries at risk. In the process, they threaten to destroy not just the source of their own profits but the spending and investment that lie at the foundation of the US economy. We may all end up with our heads cut off.